## CLAIMS

## We claim:

- 1. A tensioner comprising:
- a housing having a plunger-receiving hole, said hole having a front end, an opening at said front end, a plunger-receiving part having a first diameter, and a widened part adjacent said front end, said widened part having a diameter wider than said first diameter and a shoulder recessed from said front end and facing toward said front end;
- a plunger having a longitudinal axis and slidably fitting into said plunger-receiving hole and protruding axially from the opening thereof in a protruding direction, said plunger having an external surface with longitudinally extending, toothed racks formed thereon;
- a protrusion biasing spring, biasing said plunger in said protruding direction;
- a cam-receiving ring, through which the plunger extends, the cam-receiving ring being located in said widened part of the hole, and having an oblique cam-guiding surface, said guiding surface sloping in the direction of protrusion of the plunger and outward from the axis of the plunger;
- a ring-biasing spring, biasing said cam-receiving ring in the direction of protrusion of the plunger;
- a plurality of wedge-shaped cams, which slide on the oblique cam-quiding surface of the cam-receiving

- ring, and engageable with the racks on said plunger;
- a cam-biasing spring, biasing said wedge-shaped cams in the direction opposite to said direction of protrusion of the plunger; and
- a seal cap on said housing, the seal cap having a cap opening through which the plunger extends axially, and cooperating with said widened portion of said hole to provide an enclosure containing said ring-biasing spring, said cam-receiving ring, said wedge-shaped cams, and said cam biasing spring, said seal cap having an inside end surface surrounding said cap opening;
- wherein said cam-receiving ring is disposed between said inside end surface of said seal cap and said shoulder, and movable axially therebetween.
- 2. A chain tensioner according to claim 1, in which when the minimum backlash distance of said plunger is defined as M, the maximum backlash distance of said plunger is defined as N, the maximum displacement of said camreceiving ring is defined as S, the return distance of the plunger due to displacement of said cams from a position immediately preceding the position at which said cams step over one tooth of the racks is defined as n, and the return distance of the plunger due to displacement of said cams from a position immediate following the position at which said cams step over one tooth of the racks is defined as m, the dimensions of the racks of the plunger, the wedge-

shaped cams, and the cam-receiving ring satisfy the relationships M = m + S and N = n + S.